



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,160	12/15/2003	Jung-Hoe Kim	1901.1344	2075
21171	7590	01/29/2010		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER VO, HUYEN X	
			ART UNIT 2626	PAPER NUMBER
			MAIL DATE 01/29/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/734,160

**Applicant(s)**

KIM ET AL.

**Examiner**

HUYEN X. VO

**Art Unit**

2626

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on considered is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS/US)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments filed 12/22/2009 have been fully considered but they are not persuasive.
2. In response to applicant's argument regarding "the band-extension information is multiplexed with the coded bandwidth-limited data without any coding process on the bandwidth-extension information" (page 2 of the REMARKS section), the claims fail to specify that the bandwidth-extension information cannot be coded before multiplexing with the coded bandwidth-limited data. Furthermore, whether the extension information is coded or not would not play a central role in reconstruction of the high frequency band. As long as the extension information is available at the receiver, the high frequency band can be reconstructed.
3. The new limitation regarding "wherein the digital data in the high frequency band is not included in the bandwidth extension information" is not described in the original disclosure. Therefore, it is considered new matter. The extension information is treated as either the high frequency band data of the original signal itself or representations of the high frequency band data of the original signal.
4. In response to applicant's argument regarding "Rose merely appear to describe coding the original signal x into a base layer and an enhancement layer. Consequently,

the bandwidth-limited data in which high frequency data is sliced off is different from the original signal of Rose" (*page 3 of the REMARKS section*), all signals to be processed by a particular system must be band limited (*from basic theory of signal processing*). If a signal is not band limited, the system would have to process all the frequency components. That is an infinite number of frequency components, which is impractical. Therefore, the signal x is considered a band-limited signal.

### ***Claim Objections***

5. Claim 1 is objected to because of the following informalities: "the digital being" in line 5 should read – the digital data being –. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1, 6, 11, 16, 21, 26, 30, and 34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The new limitation regarding "wherein the digital data in the high frequency band is not included in the bandwidth extension information" is considered new subject matter that was not

described in the original disclosure. In this office action, the extension information is treated as either the high frequency band data of the original signal itself or representations of the high frequency band data of the original signal.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 4-6, 9-18, 21, 24-26, 29-30, 33-34, and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sluijter et al. (USPN 6772114) in view of Rose et al. (USPN 6947886).

10. Regarding claims 1 and 6, Sluijter et al. disclose a method (*the method is employed in the apparatus of figure 1*) and apparatus (*figure 1*) of encoding digital data, the method comprising:

bandwidth-extension-encoding the digital data (*input signal in figure 1*), outputting bandwidth-limited data (*splitter 7 in figure 1 divides the digital data into a low-band and high-band data*), and generating bandwidth extension information (*output of splitter 7; high-band data*), wherein said bandwidth-extension-encoding includes receiving digital data (*figures 1-2*), slicing off a portion of the digital data in a high frequency band with the remaining portion of the digital being bandwidth-limited data (*figures 1-2; signal is*

*divided into low-frequency band and high-frequency band*), wherein the bandwidth extension information is information necessary for restoring the sliced portion of the digital data (*figures 1-2; information of the high-frequency band is transmitted to the receiver for later used to reconstruct high-frequency band*).

encoding the bandwidth-limited data (*LFENC 9 in figure 1 encodes low-band data*); and

multiplexing the encoded bandwidth-limited data and the bandwidth extension information (*low-band data and high-band data are combined in at 3 in figure 1*), wherein the digital data in the high frequency band is not included in the bandwidth extension information (*see figure 1; this limitation contains new subject matter; in this limitation, the extension information is treated as information obtained based on data of the high frequency band*).

Sluijter et al. fail to specifically disclose encoding the bandwidth-limited data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate. However, Rose et al. teach encoding the bandwidth-limited data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate (*col. 5, lines 60 to col. 6, line 48 and/or referring to figures 3-4; showing base-layer and enhancement layer*), wherein said bandwidth-extension-encoding includes receiving digital data (*figures 1-2*), slicing off a portion of the digital data in a high frequency band with the remaining portion of the digital being bandwidth-limited data (*figures 1-2; signal is divided into low-frequency band and high-frequency band*), wherein the bandwidth extension information is information necessary for

restoring the sliced portion of the digital data (*figures 1-2; information of the high-frequency band is transmitted to the receiver for later used to reconstruct high-frequency band*).

Since Sluijter et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sluijter et al. by replacing conventional coder (9 in figure 1) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

11. Regarding claims 21 and 26, Sluijter et al. disclose an apparatus (*figure 4*) for encoding audio data, the apparatus comprising:

bandwidth extension encoder that bandwidth-extension-encodes the audio data (*input signal in figure 1*), outputs bandwidth-limited audio data (*splitter 7 in figure 1 divides the digital data into a low-band and high-band data*), and generates bandwidth extension information (*splitter 7 in figure 1 outputs high-band data*), wherein said bandwidth-extension-encoding includes receiving digital data (*figures 1-2*), slicing off a portion of the digital data in a high frequency band with the remaining portion of the digital being bandwidth-limited data (*figures 1-2; signal is divided into low-frequency band and high-frequency band*), wherein the bandwidth extension information is information necessary for restoring the sliced portion of the digital data (*figures 1-2; information of the high-frequency band is transmitted to the receiver for later used to reconstruct high-frequency band*).

encoder for encoding the bandwidth-limited audio data (*LFENC 9 in figure 1 encodes low-band data*); and

multiplexer that multiplexes the encoded bandwidth-limited audio data and the bandwidth extension information (*ow-band data and high-band data are combined in at 3 in figure 1*), wherein the digital data in the high frequency band is not included in the bandwidth extension information (*see figure 1; this limitation contains new subject matter; in this limitation, the extension information is treated as information obtained based on data of the high frequency band*).

Sluijter et al. fail to specifically disclose encoding the bandwidth-limited audio data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate. However, Rose et al. teach encoding the bandwidth-limited audio data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate (*col. 5, lines 60 to col. 6, line 48 and/or referring to figures 3-4; showing base-layer and enhancement layer*).

Since Sluijter et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sluijter et al. by replacing conventional coder (9 in figure 1) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

12. Regarding claims 4, 9, 24, and 29, the combination of Sluijter et al. and Rose et al. (*by replacing the standard coder (9 of figure 1) of Sluijter et al. with the coder (the*



*operation of figure 4) of Rose et al., as discussed in claims 1 and 6) further disclose wherein the encoded bandwidth-limited data and the bandwidth extension information is multiplexed (end result 3 in figure 1 of Sluijter et al.) in such an order that a portion of the encoded bandwidth-limited data corresponding to the base layer is located (the operation of figure 4 of Rose et al., which is replacing the conventional encoder 9 in figure 1 of Sluijter et al.), the bandwidth extension information is located (high-band data into 11 in figure 1 of Sluijter et al.), and portions of the bandwidth-limited data corresponding to the remaining enhancement layers are located (the operation of figure 4 of Rose et al., which is replacing the conventional encoder 9 in figure 4 of Sluijter et al.).*

Since Sluijter et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sluijter et al. by replacing conventional coder (9 in figure 1) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

13. Regarding claims 5, 10, and 25, the combination of Sluijter et al. and Rose et al. *(by replacing the standard encoder (9 of figure 1) of Sluijter et al. with the encoder (the operation of figure 4) of Rose et al., as discussed in claims 1 and 6) further disclose wherein the encoded bandwidth-limited data and the bandwidth extension information is multiplexed (end result 3 in figure 1 of Sluijter et al.) in such an order that the bandwidth extension information is located (high-band data output by the splitter 7 in figure 1 of*

*Sluijter et al.*), a portion of the encoded bandwidth-limited data corresponding to the base layer is located (*the operation of figure 4 of Rose et al., which is replacing the conventional encoder 9 in figure 1 of Sluijter et al.*), and portions of the bandwidth-limited data corresponding to the remaining enhancement layers are located (*the operation of figure 4 of Rose et al., which is replacing the conventional encoder 9 in figure 1 of Sluijter et al.*).

Since *Sluijter et al.* and *Rose et al.* analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify *Sluijter et al.* by replacing conventional coder (9 in figure 1) with the coder (in figure 4) of *Rose et al.* in order to improve bit rates while preserving signal quality.

14. Regarding claims 11-18, 30, 33-34, and 36-37, *Sluijter et al.* disclose a decoding method/apparatus (*receiver 5 in figure 1*). *Sluijter et al.* fail to teach few features of the claimed decoder. However, the decoder of claims 11-18, 30, 33-34, and 36-37 is only a reverse or mirror-image operation of claims 1-10 and 21-29. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to readily realize that the decoding operation is only a mirror image or a reversed operation of the encoder. One of ordinary skill in the art would have been able to design a decoder complementary to the claimed encoder in order to decode the encoded signal.

***Allowable Subject Matter***

15. Claims 2-3, 7-8, 19-20, 22-23, 27-28, 31-32, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. You et al. (USPN 6226616) is considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN X. VO whose telephone number is (571)272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huyen X Vo/  
Primary Examiner, Art Unit 2626

1/26/2010

\*\*\*